

**We claim:**

1. A method for quantitatively assessing a peripheral vascular function in a limb of a patient, the method comprising:
  - (a) measuring a peripheral pulse volume  $PV$  in the limb of the patient;
  - 5 (b) measuring a blood pressure of the patient; and
  - (c) calculating a quantity representing the peripheral vascular function in the limb, using the peripheral pulse volume  $PV$  measured in step (a) and the blood pressure measured in step (b).
2. The method of claim 1, wherein step (b) comprises:
  - (i) measuring a diastolic blood pressure  $DBP$  of the patient;
  - 10 (ii) measuring a systolic blood pressure  $SBP$  of the patient; and
  - (iii) calculating a pulse pressure  $PP$  of the patient as  $PP = SBP - DBP$ .
3. The method of claim 2, further comprising measuring a heart rate  $HR$  of the patient, and wherein step (c) comprises calculating the quantity also using the heart rate  $HR$ .
4. The method of claim 3, wherein step (c) comprises calculating a pulsatile flow  $PF$  as
$$15 \quad PF = PV \times HR.$$
5. The method of claim 4, wherein step (c) further comprises calculating a vascular resistance  $R$  as  $PP/PF$ .
6. The method of claim 4, wherein:
  - step (b) further comprises calculating a mean blood pressure  $MBP$ ; and
  - 20 step (c) further comprises calculating a total flow  $TF$  as  $TF = PF \times MBP/PP$ .
7. The method of claim 6, wherein step (c) further comprises calculating a vascular resistance  $R$  as  $R = MBP/TF$ .

8. The method of claim 2, wherein step (c) comprises calculating a vascular compliance  $C$  as  $C = PV/PP$ .

9. The method of claim 1, further comprising controlling a display to display the quantity calculated in step (c).

5        10. The method of claim 1, further comprising controlling a storage device to store the quantity calculated in step (c) for later review.

11. The method of claim 1, further comprising transmitting the quantity calculated in step (c) over a communication link to a remote location for review.

10      12. The method of claim 1, wherein steps (a), (b) and (c) are performed using an integrated device.

13. The method of claim 1, wherein:

step (a) is performed using a pulse volume meter;

step (b) is performed using a blood pressure monitor which is provided separately from the pulse volume meter; and

15      step (c) is performed using a computing device which is provided separately from the pulse volume meter and the blood pressure monitor.

14. The method of claim 13, wherein the peripheral pulse volume and the blood pressure are input automatically into the computing device.

15. The method of claim 13, wherein the peripheral pulse volume and the blood pressure 20 are input manually into the computing device.

16. A system for quantitatively assessing a peripheral vascular function in a limb of a patient, the system comprising:

a pulse volume meter for measuring a peripheral pulse volume  $PV$  in the limb of the patient;

a blood pressure monitor for measuring a blood pressure of the patient; and

a computing device for receiving the peripheral pulse volume and the blood pressure and

5 for calculating a quantity representing the peripheral vascular function in the limb, using the peripheral pulse volume and the blood pressure.

17. The system of claim 16, wherein the blood pressure monitor measures a diastolic blood pressure  $DBP$  of the patient and a systolic blood pressure  $SBP$  of the patient and calculates a pulse pressure  $PP$  of the patient as  $PP = SBP - DBP$ .

10 18. The system of claim 17, wherein the computing device also receives a heart rate  $HR$  of the patient and calculates the quantity also using the heart rate  $HR$ .

19. The system of claim 18, wherein the computing device also calculates a pulsatile flow  $PF$  as  $PF = PV \times HR$ .

20. The system of claim 19, wherein the computing device also calculates a vascular  
15 resistance  $R$  as  $PP/PF$ .

21. The system of claim 19, wherein:

the blood pressure monitor calculates a mean blood pressure  $MBP$ ; and

the computing device also calculates a total flow  $TF$  as  $TF = PF \times MBP/PP$ .

22. The system of claim 21, wherein the computing device calculates a vascular  
20 resistance  $R$  as  $R = MBP/TF$ .

23. The system of claim 17, wherein the computing device calculates a vascular compliance  $C$  as  $C = PV/PP$ .

24. The system of claim 16, wherein the computing device comprises a display for displaying the quantity calculated by the computing device.

25. The system of claim 16, wherein the computing device comprises a storage device for storing the quantity calculated by the computing device.

5        26. The system of claim 16, wherein the computing device comprises a communication link for transmitting the quantity calculated by the computing device over a communication link to a remote location for review.

27. The system of claim 16, wherein the pulse volume meter, the blood pressure monitor and the computing device are comprised in an integrated device.

10        28. The system of claim 16, wherein the pulse volume meter, the blood pressure monitor and the computing device are separate devices.

29. The system of claim 28, wherein the pulse volume meter, the blood pressure monitor and the computing device are in communication with one another such that the peripheral pulse volume and the blood pressure are input automatically into the computing device.

15        30. The system of claim 28, wherein the peripheral pulse volume and the blood pressure are input manually into the computing device.